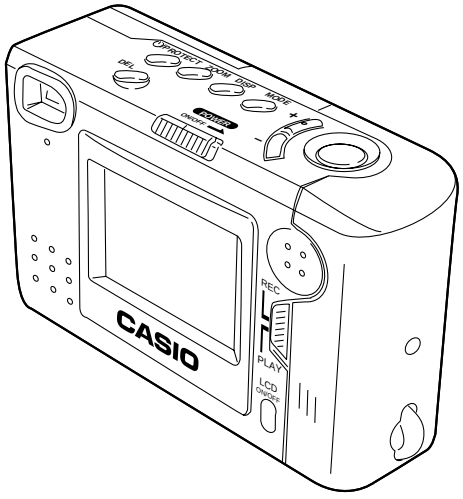
SERVICE MANUAL & PARTS LIST (without price)

QV-70B (NTSC)
QV-70C (PAL)
(KX-770)

OCT. 1997



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CASIO®

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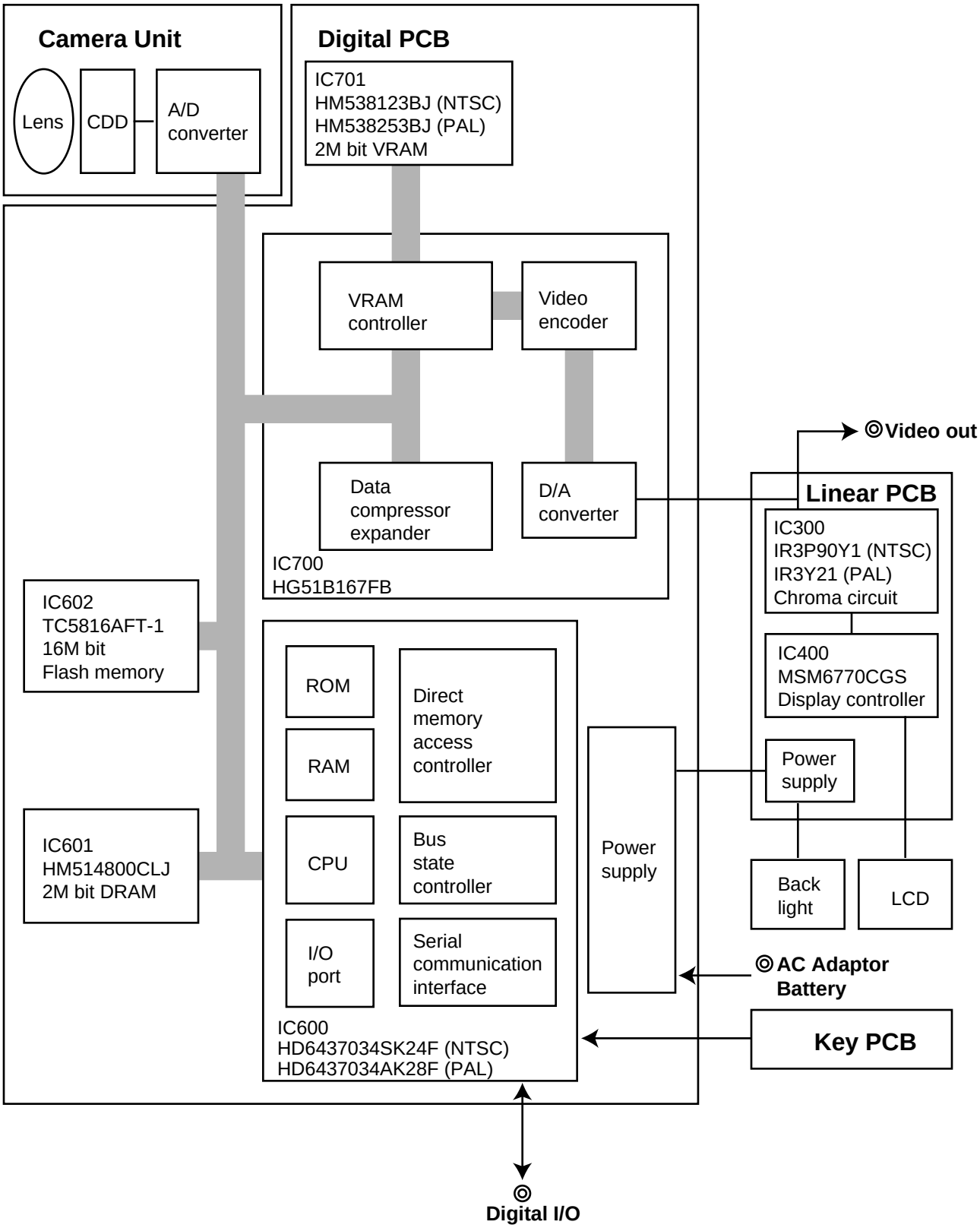
SPECIFICATIONS

Item	Specification
1. Recording System	Digital (JPEG based)
2. Video Signal System	NTSC (QV-70B) / PAL (QV-70C)
3. Recording Medium	Built-in 2-MB flash memory
4. Number of pages	96
5. Delete Functions	Single page; All pages (with page protect feature)
6. Imaging Device	1/5-inch CCD (Total Number of Pixels: 250,000)
7. Lens	Fixed focus with macro position; F2.8/f = 5.2 mm
8. Aperture	F2.8/F8 manual switching
9. Focal Length	F2.8/NORMAL : 0.6 m to 3.0 m F2.8/MACRO : 12 cm to 14 cm F8/NORMAL : 0.4 m to ~ F8/MACRO : 10 cm to 18 cm (from lens protection filter)
10. Light Metering	TTL center point by photographic element
11. Exposure Metering	Aperture priority AE
12. Exposure Range	EV +6 to 18
13. Exposure Adjustment	–2 EV to +2 EV
14. Shutter System	Electronic
15. Shutter Speed	1/8 to 1/4000 second
16. White Balance	Automatic
17. Self-timer	10-second
18. Monitor	61,380-pixel 1.8-inch TFT low-glare color LCD
19. Terminals	DIGITAL; VIDEO OUT; DC IN 6 V
20. Power Supply	Batteries (AA-size Alkaline or lithium batteries × 3) /AC Adaptor
21. Current Consumption	Approximately 550 mA (REC mode)
22. Dimensions	66(H) × 103(W) × 34(D)mm
23. Weight Approximately	150 g (excluding batteries)
24. Accessories	Wirst strap; soft case; video cable; Alkaline batteries (LR6 × 3)

BLOCK DIAGRAM



COLOR ADJUSTMENT

THE COLOR ADJUSTMENT IS REQUIRED AFTER THE FOLLOWING SITUATIONS
* The flash memory is initialized by the "AMED-I" command.
* The digital PCB or the camera unit is replaced.

REQUIRED TOOL
Light box: Handy 5000 (Code No.: 1904 5301)
Color filter: LBA 3 (Code No.: 1904 5302)
Color adjustment software: Sdj770vb.exe
Cable for QV-Link

TO DO THE COLOR ADJUSTMENT
1. Connect QV-70 to PC with QV-Link cable.
2. Set the aperture switch of QV-70 to F8.
3. Put the color filter on the light box, and turn the light box on.
4. Put the QV-70 with its lens toward the color filter and light box, and turn the QV-70 on.
5. Execute the color adjustment software "Sdj770vb.exe" on PC (MS-DOS).
   Type "Sdj770vb", then press Enter. The message "WAIT" appears on the QV-70 and some parameters appear on the PC like as the followings.

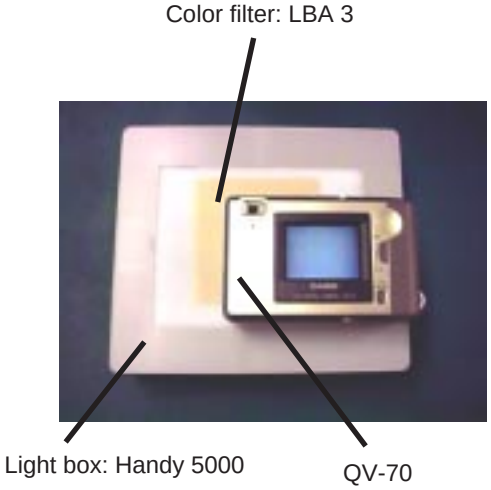
SUMCODE = 835321
adjust for KX770.

```
 *******************************************
 * COLOR ADJUSTMENT for KX770  *
 *                  ver 1.0                  *
 *******************************************
CAUTION!!!   Set f-stop to F8, otherwise doesn't work correctly.
  Now adjusting... 0 2
      done.

System block    1FE
ASUM      4AB40      CSUM      35662
DSUM      2EA67      ESUM      558FF

RKD  FE30      RKE   1D0
BKA   1F0      BKC  FE10
GKC   200      GKD   100      GKE  FF00

ALPHA  FFFC     BETA  FF82     TINT   155
RAlimit_L    BBB       RAlimit_H    FE0
BAlimit_L   1298       BAlimit_H   1ECE
COL_BAS  28   Y_OFFSET  2
RAMP_INIT   DCD       BAMP_INIT  18B3
LIN_SUB  108          LIN_SUBY   F8
```



MEMORY RESTORING AND RESET

MEMORY ERROR

"Memory error" (#1 ~ #3) message appears on QV-70 camera, when an error is found in its flash memory. In this case, the QV-70 is locked up and do not accept any operation except power on / off.

MEMORY ERROR #1

When the memory error #1 occures, press the + button to do the error reset. The following display will be appeared on QV-70.

```
ERROR RESET
YES    SHUTTER
NO     CALL TECH
       SUPPORT!
```

Then press the shutter button. The display should return to normal.
(Refer to owner´s manual for QV-70.)

MEMORY ERROR #2, #3

When the memory error #2 or #3 occures, do the memory restoring.

Notes: 1. When do the error reset or memory restoring, use the AC adaptor.
2. Never turn the power off, while doing the error reset or memory restoring.

MEMORY RESTORING

REQUIRED TOOL

Memory restoring software: Amed.exe
Cable for QV-Link

OPERATION

1. Connect the QV-70 to PC with the cable.
2. Execute the "AMED -PIR" command on MS-DOS, then the following message will be appeared on the PC.

```
QV series Automatic Memory Error Debugger ver 2.0

Camera type = QV-10A/QV-30    0090:532E
Searching management block ...
Found at bank 1FF     status  ---  OK
Saving management block as "mngblk.dat"
```

Saving system block at bank 1FE as "sysblk.dat"

Image No. 1 in 006 007 008 009 00A save as "image001.cam"
Image No. 2 in 00B 00C 00D 00E 00F save as "image002.cam"
Image No. 3 in 010 011 012 013 014 save as "image003.cam"

--- Initialize Flash Memory
--- Create mamagement block at bank No.1FF
--- Reset

Restore system block at bank 1FE from "sysblk.dat"

Loading image "image001.cam"
Loading image "image002.cam"
Loading image "image003.cam"

3. The displays on the QV-70 are returned to normal.

When the memory error is not solved by the above steps, do the memory reset and color adjustment.

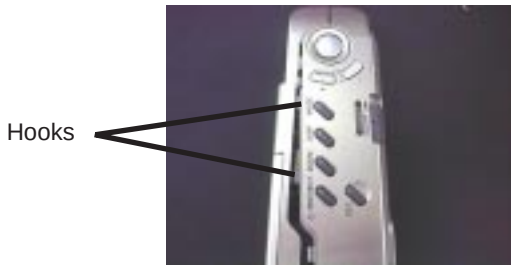
MEMORY RESET

1. Connect the QV-70 to PC with the cable.
2. Execute the "AMED -I" command on MS-DOS.
3. Do the color adjustment. (See COLOR ADJUSTMENT)

DISASSEMBLY

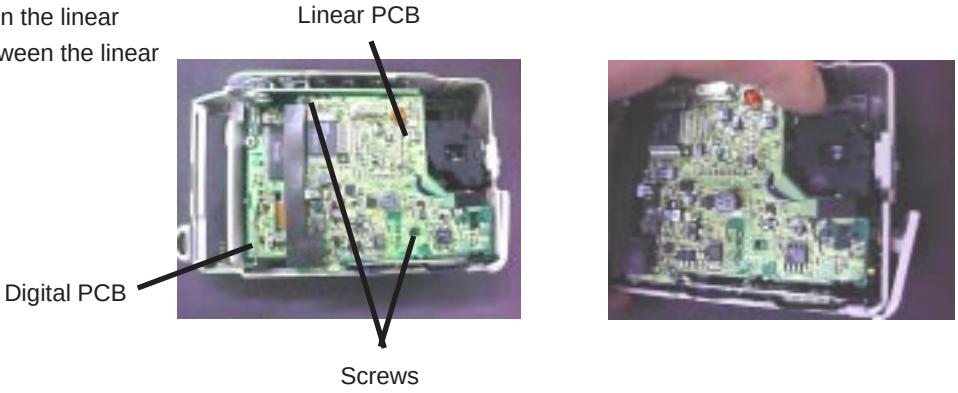
1. Remove the four screws.

2. Unhook the upper side of the unit, then open the case from the upper side.

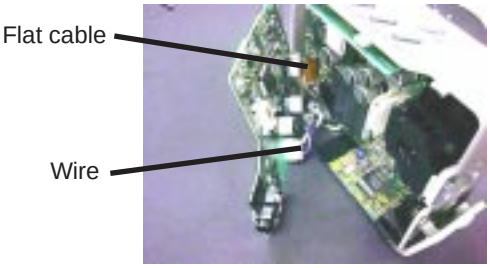


3. Be sure not to lose the bright knob, then remove the case.

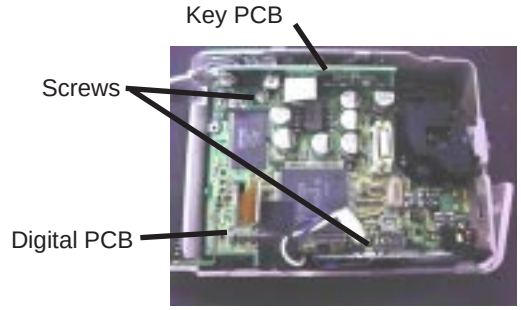
4. Remove the two screws on the linear PCB, then disconnect between the linear and digital PCBs.



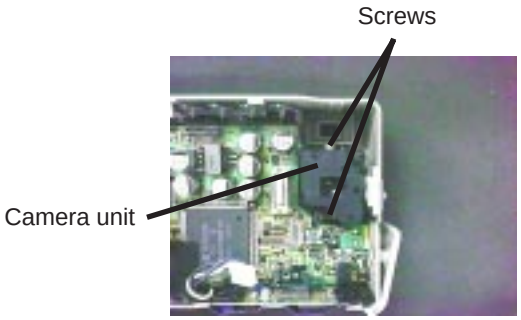
5. Disconnect the wire for the back light and the flat cable for the LCD, then remove the linear PCB.



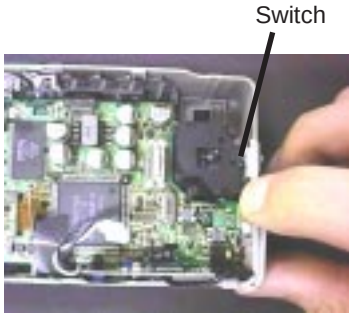
6. Remove the key PCB and two screws on the digital PCB.



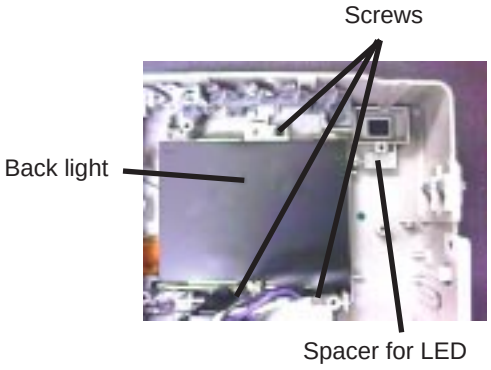
7. Remove the two screws on the camera unit.



8. Unhook the slide switches of the camera unit, then remove the digital PCB and the camera unit.



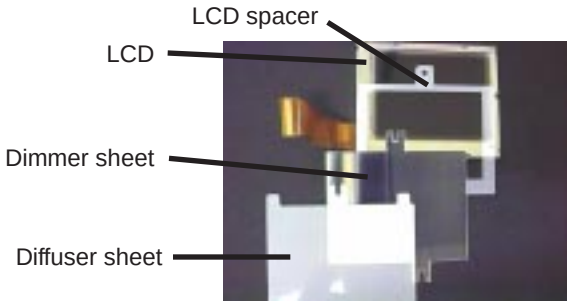
9. Remove the three screws, then remove the back light.
   Note: Be sure not to lose the spacer.



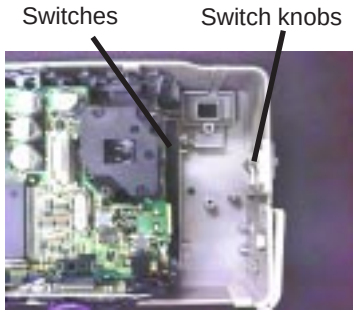
ASSEMBLY

The assembly can be done by reverse order of the disassembly steps. The notes of the assembly are as follows;

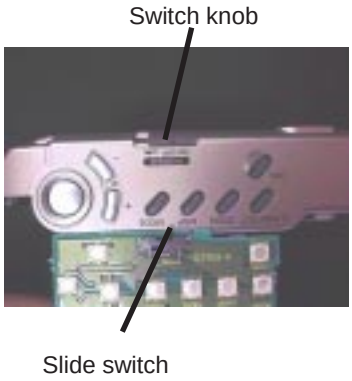
1. Be sure to set the spacer and sheets on the LCD as the figure.



2. Be sure to align the switches on the camera unit with the switch knobs.

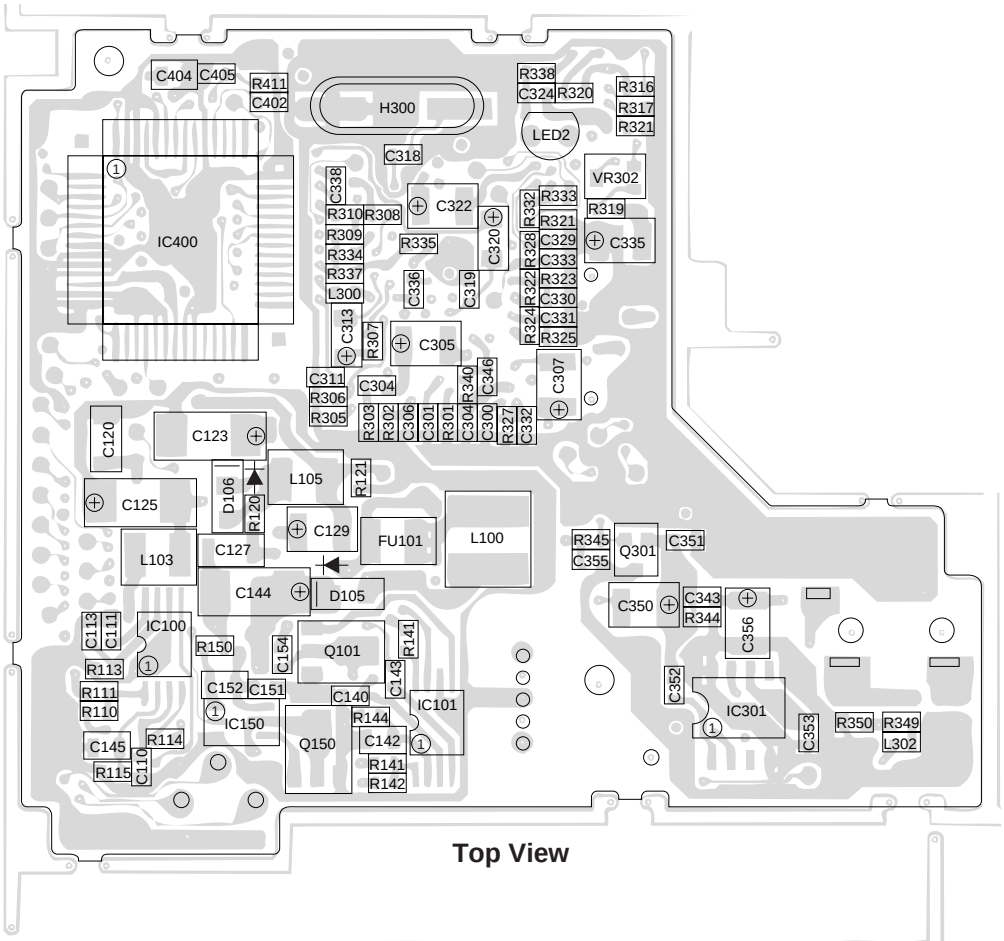


3. Be sure to align the slide switch on the key PCB with the switch knob for power.

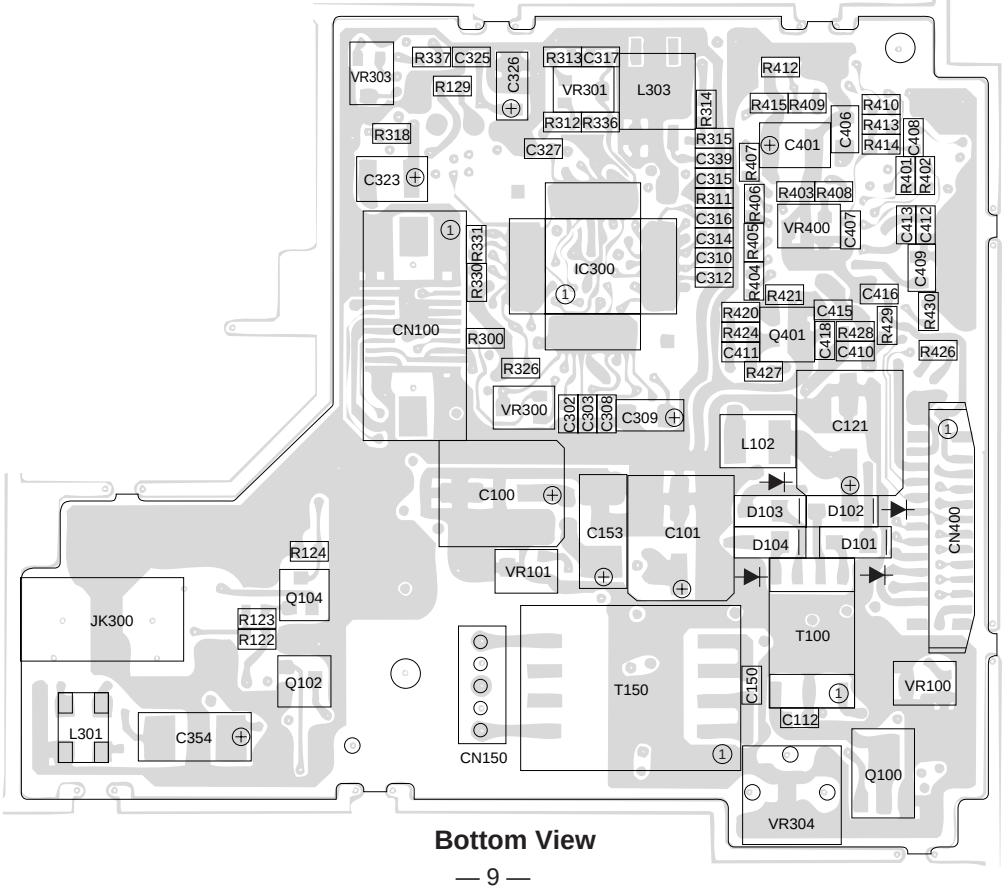


PRINTED CIRCUIT BOARDS

LINEAR

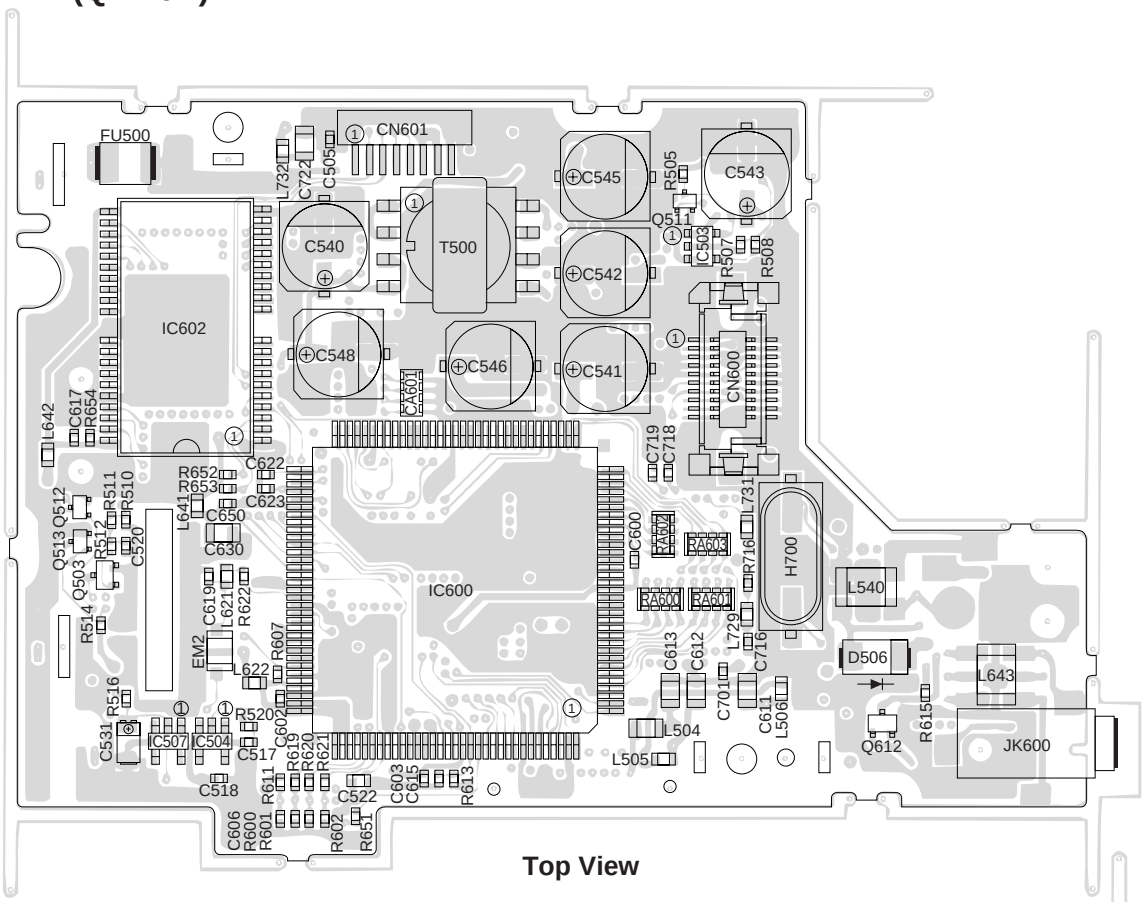


Top View

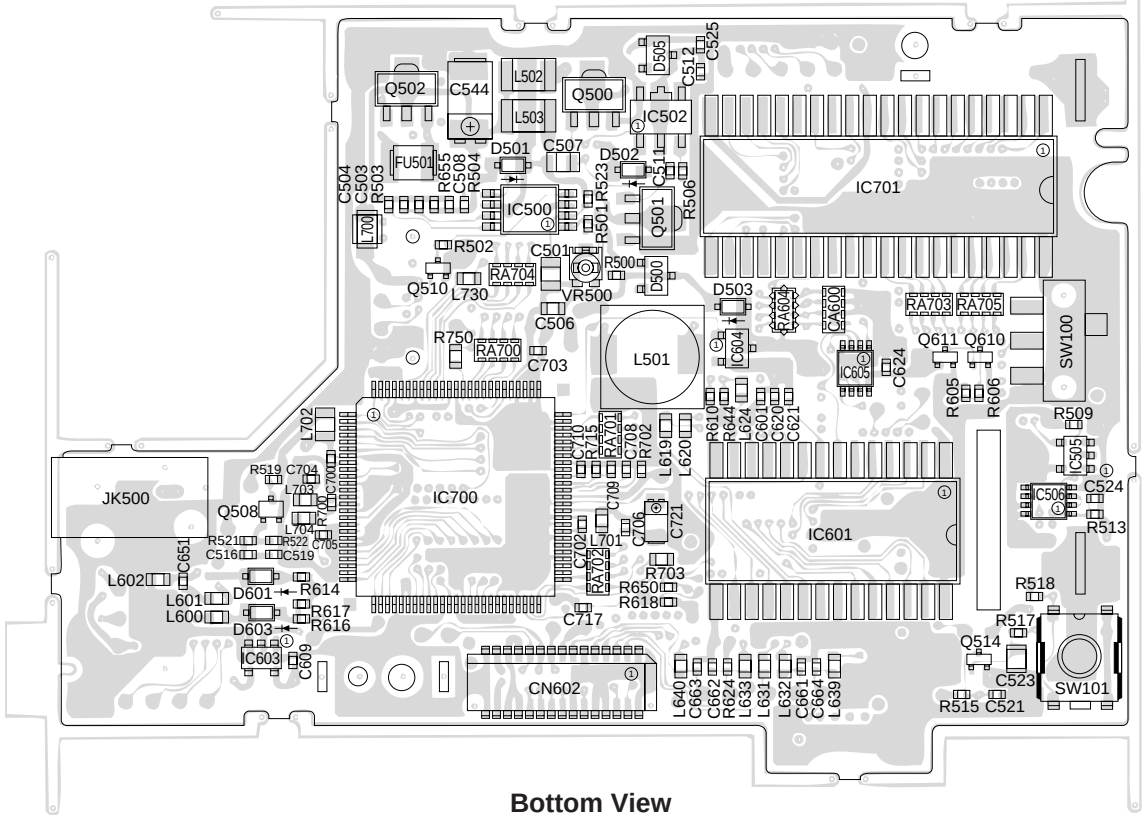


Bottom View

DIGITAL (QV-70B)

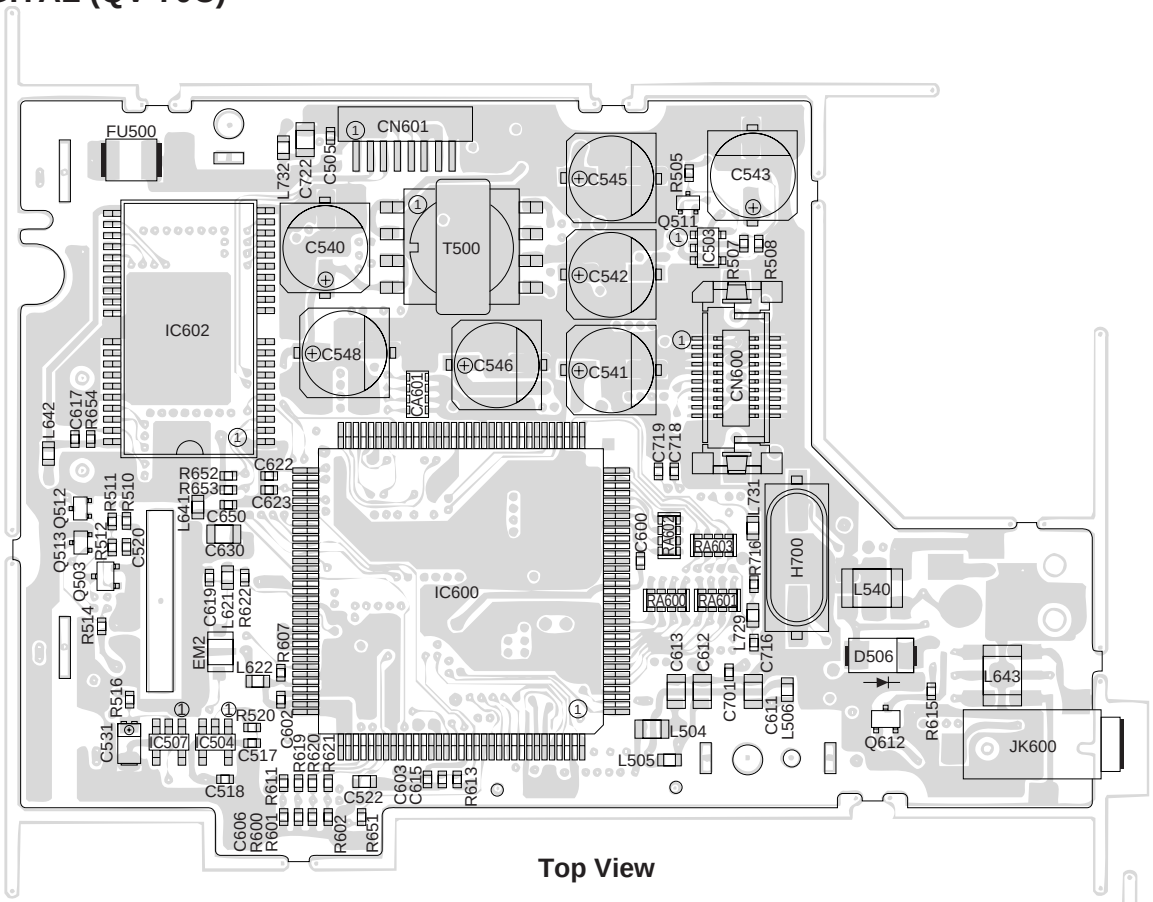


Top View

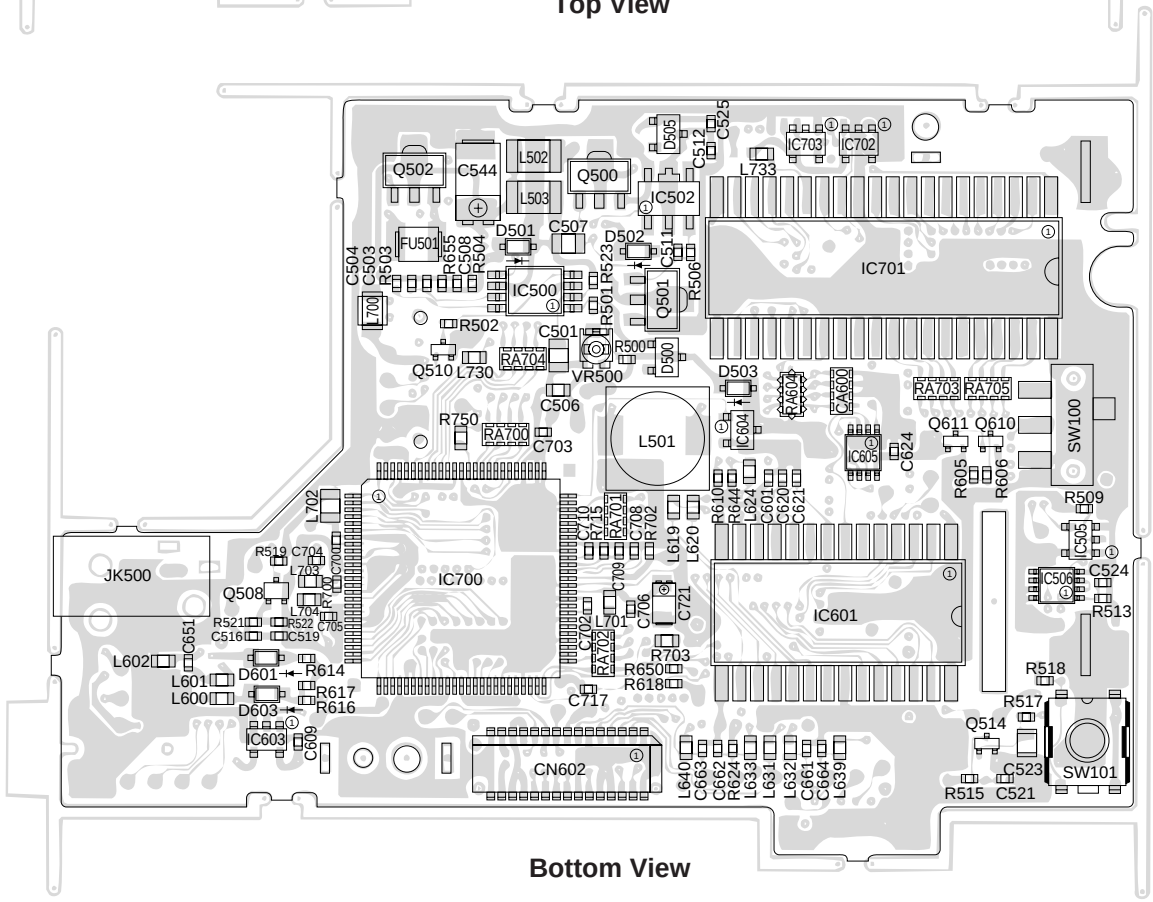


Bottom View

DIGITAL (QV-70C)

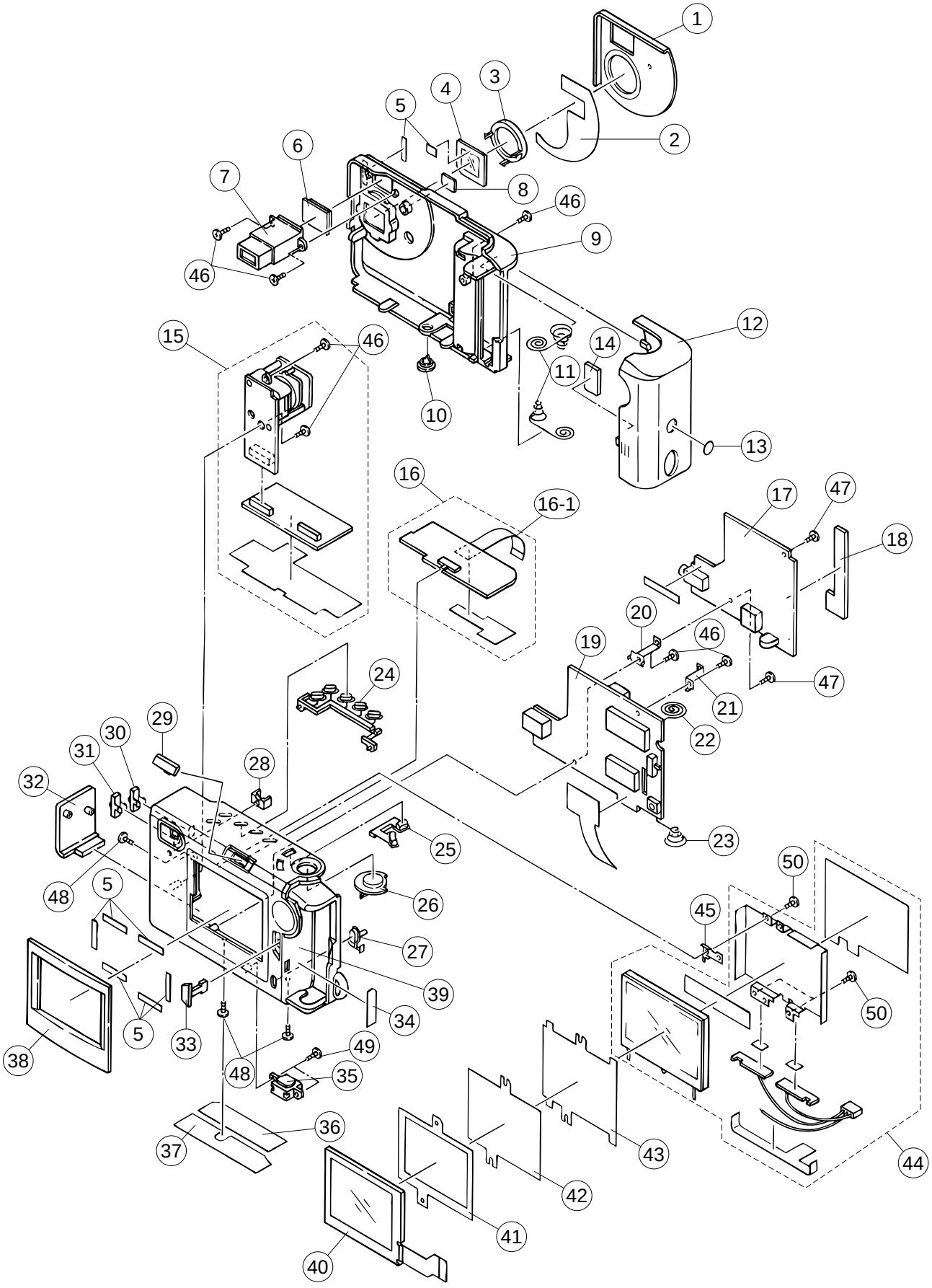


Top View



Bottom View

EXPLODED VIEW



PARTS LIST

LINEAR PCB ASS'Y

Item	Code No.	Parts Name	Specification	Applicable	Q	R
	Diodes					
D101	7101 1194	DIODE	MA111-(TX)	Common	1	C
D102	2390 1379	DIODE/SCHOTTKY	MA729-(TX)	Common	1	C
D103	2390 1379	DIODE/SCHOTTKY	MA729-(TX)	Common	1	C
D104	7101 1194	DIODE	MA111-(TX)	Common	1	C
D105	2390 1379	DIODE/SCHOTTKY	MA729-(TX)	Common	1	C
D106	2360 2359	DIODE/ZENER	MA8180-L(TX)	Common	1	C
	Fuse					
FU101	3122 3332	FUSE	ICP-S0.5TN	Common	1	B
	ICs					
IC100	2114 5800	IC	MB3800PFV-G-BND-EF	Common	1	C
IC101	2114 5800	IC	MB3800PFV-G-BND-EF	Common	1	C
IC150	2105 3990	IC	TC7S02F-TE85L	Common	1	C
IC300	2114 5537	IC/LINEAR	IR3P90Y1	QV70B (NTSC)	1	C
IC300	2114 5740	IC/LINEAR	IR3Y21	QV70C (PAL)	1	C
IC301	2105 6378	IC	MM1228XFBE	Common	1	C
IC400	2015 0147	LSI	MSM6770CGS-2K-6004	Common	1	C
	Jack					
JK300	3501 5439	JACK	HSJ1456-01-210	Common	1	C
	LED					
LED2	2370 1393	LED	SLR-332VC3F	Common	1	C
	Transistors					
Q100	2253 0308	TRANSISTOR	2SD1119-R(TX)	Common	1	B
Q101	2253 0308	TRANSISTOR	2SD1119-R(TX)	Common	1	B
Q102	7911 0126	TRANSISTOR/DIGITAL	DTC144EUAT106	Common	1	B
Q104	2251 0189	TRANSISTOR	2SB1218A-R(TX)	Common	1	B
Q150	2253 0700	TRANSISTOR	2SK1485-T1	Common	1	B
Q301	2251 0189	TRANSISTOR	2SB1218A-R(TX)	Common	1	B
Q401	2251 0189	TRANSISTOR	2SB1218A-R(TX)	Common	1	B
	Converter and Transformer					
T100	3065 0693	CONVERTER/DC-DC	TTV6DD360M02	Common	1	B
T150	3012 1414	TRANSFORMER/INVERTER	BLC10-01	Common	1	B
	Variable resistor					
VR304	2775 0644	RESISTOR/SEMI-FIXED	H0614D-10KB	Common	1	C

Notes: Q – Quantity used per unit
R – Rank

DIGITAL PCB ASS'Y

Item	Code No.	Parts Name	Specification	Applicable	Q	R
	Diodes					
D500	2390 2268	DIODE	MA727-(TX)	Common	1	C
D501	2360 1876	DIODE/ZENER	MA8100-M(TX)	Common	1	C
D502	2390 1379	DIODE/SCHOTTKY	MA729-(TX)	Common	1	C
D503	7101 1194	DIODE	MA111-(TX)	Common	1	C
D505	2390 2261	DIODE	MA720-(TX)	Common	1	C
D506	2390 1421	DIODE/SCHOTTKY	MA738-(TX)	Common	1	C
D601	2390 1379	DIODE/SCHOTTKY	MA729-(TX)	Common	1	C
D603	2390 1379	DIODE/SCHOTTKY	MA729-(TX)	Common	1	C
	Fuses					
FU500	3632 0715	FUSE	F1206A1R50FW-TP	Common	1	A
FU501	3122 3332	FUSE	ICP-S0.5TN	Common	1	A
	ICs					
IC500	2114 5800	IC	MB3800PFV-G-BND-EF	Common	1	C
IC502	2105 3969	IC	RH5RH503B-T1	Common	1	C
IC503	2105 3689	IC	RN5RG50AA-TR	Common	1	C
IC504	2105 3976	IC	RN5RL25AA-TR	Common	1	C
IC505	2105 1407	IC/CMOS	TC7S00F-TE85L	Common	1	C
IC506	2105 5215	IC/CMOS	TC7W74FU(TE12L)	Common	1	C
IC507	7911 2982	IC	RN5VL25AA-TR	Common	1	C
IC600	2012 5769	LSI	HD6437034SK24F	QV70B (NTSC)	1	C
IC600	2012 5832	LSI	HD6437034AK28F	QV70C (PAL)	1	C
IC601	2012 3591	LSI	HM514800CLJ	Common	1	C
IC602	2012 2793	LSI	TC5816AFT-1	Common	1	C
IC603	2105 4305	IC	TC7S04F(TE85L)	Common	1	C
IC604	2105 6460	IC	XC61BN3812MR	Common	1	C
IC605	2105 5719	IC	TC7W32FU(TE12L)	Common	1	C
IC700	2011 9457	LSI	HG51B167FB	Common	1	C
IC701	2012 3598	LSI	HM538123BJ	QV70B (NTSC)	1	C
IC701	2012 3605	LSI	HM538253BJ	QV70C (PAL)	1	C
IC702	2105 3990	IC/CMOS	TC7S02F-TE85L	QV70C (PAL)	1	C
IC703	2101 1061	IC/CMOS	TC7S32F-TE85L	QV70C (PAL)	1	C
	Jacks					
JK500	3501 6755	JACK	HEC3600-010120	Common	1	C
JK600	3501 6538	JACK	HSJ1169-012010	Common	1	C
	Switches					
SW100	3412 1106	SWITCH/SLIDE	SSSS212-12	Common	1	B
SW101	3412 2076	SWITCH	SKHUBB-T	Common	1	C
	Transistors					
Q500	2253 0308	TRANSISTOR	2SD1119-R(TX)	Common	1	B
Q501	2253 0308	TRANSISTOR	2SD1119-R(TX)	Common	1	B
Q502	2251 0882	TRANSISTOR	2SB1073-(TX)	Common	1	B
Q503	2251 0189	TRANSISTOR	2SB1218A-R(TX)	Common	1	B
Q508	2253 0133	TRANSISTOR	2SD1819A-R(TX)	Common	1	B
Q510	2259 2715	TRANSISTOR/DIGITAL	DTC144EETL	Common	1	B
Q511	2259 2715	TRANSISTOR/DIGITAL	DTC144EETL	Common	1	B
Q512	2259 2715	TRANSISTOR/DIGITAL	DTC144EETL	Common	1	B
Q513	2259 2715	TRANSISTOR/DIGITAL	DTC144EETL	Common	1	B
Q514	2259 2715	TRANSISTOR/DIGITAL	DTC144EETL	Common	1	B
Q610	2259 2731	TRANSISTOR/DIGITAL	DTA114EE-TL	Common	1	B
Q611	2259 2715	TRANSISTOR/DIGITAL	DTC144EETL	Common	1	B
Q612	2254 0448	FET	2SK1580-T1	Common	1	B
	Converter					
T500	3701 0693	CONVERTER/DC-DC	CEE98-05	Common	1	B

Notes: Q – Quantity used per unit
R – Rank

KEY PCB ASS'Y

Item	Code No.	Parts Name	Specification	Applicable	Q	R
	Switches					
SW900	3412 1421	SWITCH/SLIDE	ESD165227	Common	1	B
SW901	3412 1995	SWITCH	SKQRAA-T	Common	1	C
SW902	3412 1995	SWITCH	SKQRAA-T	Common	1	C
SW903	3412 1995	SWITCH	SKQRAA-T	Common	1	C
SW904	3412 1995	SWITCH	SKQRAA-T	Common	1	C
SW905	3412 1995	SWITCH	SKQRAA-T	Common	1	C
SW906	3412 1995	SWITCH	SKQRAA-T	Common	1	C
SW907	3412 1995	SWITCH	SKQRAA-T	Common	1	C
SW908	3412 1995	SWITCH	SKQRAA-T	Common	1	C

Notes: Q – Quantity used per unit
R – Rank

MAIN COMPONENT

Item	Code No.	Parts Name	Specification	Applicable	Q	R
1	6612 4210	PANEL/LOWER	R340140-1	Common	1	X
2	6612 4280	TAPE/ADHESIVE	R440277-1	Common	1	X
3	6612 4100	COVER/PROTECTOR	R240098-1	Common	1	X
4	6612 4160	PROTECTOR/LENS	R440232-1	Common	1	X
5	6612 4270	TAPE/ADHESIVE	R440264-1	Common	7	X
6	6612 4040	PROTECTOR/FINDER	R440220-1	Common	1	X
7	1014 9715	FINDER	LF-010S	Common	1	X
8	6612 4030	PROTECTOR/LED	R440221-1	Common	1	X
9	6612 3970	CASE/LOWER	R140025-1	Common	1	X
10	6603 8924	KNOB	K3741D-1	Common	1	X
11	6020 7658	SPRING/BATTERY	P408A-1	Common	2	X
12	6612 4010	COVER/BATTERY	R240101-1	Common	1	X
13	6612 4310	BLINDER	R440273-1	Common	1	X
14	6605 8240	CUSHION	K410316-4	Common	1	X
15	1014 9714	CAMERA UNIT	LS-009E	Common	1	B
16	6612 5579	PCB ASSY/KEY	R340193*1	Common	1	C
16-1	6612 4540	CABLE/JOINT	R440272-1	Common	1	C
17	6612 5578	PCB ASSY/LINEAR	R240146*1	QV70B (NTSC)	1	B
17	6612 6379	PCB ASSY/LINEAR	K240772*1	QV70C (PAL)	1	B
18	6612 5650	CUSHION	R440279-1	Common	1	X
19	6612 5577	PCB ASSY/DIGITAL	R240145*1	QV70B (NTSC)	1	B
19	6612 6378	PCB ASSY/DIGITAL	K240771*1	QV70C (PAL)	1	B
20	6612 4180	SPACER	R440230-1	Common	1	X
21	6612 4190	SPACER	R440231-1	Common	1	X
22	6612 4220	SPRING/BATTERY	R440224-1	Common	1	X
23	6612 4230	SPRING/BATTERY	R440225-1	Common	1	X
24	6612 3980	BUTTON	R240099-1	Common	1	X
25	6612 3990	BUTTON	R340132-1	Common	1	X
26	6612 4000	BUTTON	R340131-1	Common	1	X
27	6612 4070	BUTTON	R340139-1	Common	1	X
28	6612 4020	SPACER	R440222-1	Common	1	X
29	6612 4060	KNOB/POWER	R340137-1	Common	1	X
30	6612 4080	KNOB/APERTURE	R340135-1	Common	1	X
31	6612 4090	KNOB/FOCUS	R340136-1	Common	1	X
32	6612 4110	COVER/CONNECTOR	R340138-1	Common	1	X
33	6612 4050	KNOB/REC	R340133-1	Common	1	X
34	6611 4390	HOLE/TRIPOD	R340024-1	Common	1	X
34	6612 4290	LABEL/BATTERY	R440270-1	Common	1	X
34	6612 5640	LABEL/CAUTION	R440262-2	QV70B (NTSC)	1	X
35	6612 8030	LABEL/CAUTION	R440262-3	QV70C (PAL)	1	X
36	6612 8040	LABEL/CAUTION	R440262-4	QV70C (PAL)	1	X
37	6612 5680	LABEL/RATING	R440239-2	Common	1	X
38	6612 4120	HOLDER/DISPLAY	R240100-1	Common	1	X
39	6612 3960	CASE/UPPER	R140024-1	Common	1	X
40	2725 1338	DISPLAY ASSY	COD18T1014LN	Common	1	B
41	6612 4130	SPACER/LCD	R440227-1	Common	1	X
42	6612 4140	SHEET/DIMMER	R440228-1	Common	1	X
43	6612 4150	SHEET/DIFFUSER	R440229-1	Common	1	X
44	6612 5580	BL ASSY	R340190*1	Common	1	B
45	6612 4200	SPACER	R440226-1	Common	1	X
46	5860 0301	SCREW	BT3 1.7X3.5 NI	Common	7	C
47	5861 3551	SCREW	M 1.7X3.0 Bk	Common	2	C
48	5861 3549	SCREW	PT3 1.7X3.5NI	Common	3	C
49	5860 0091	SCREW	BT3 1.7X4.5 Bk	Common	2	C
50	5861 3527	SCREW	BT3 1.7X2.5 Bk	Common	3	C

Notes: Q – Quantity used per unit
R – Rank

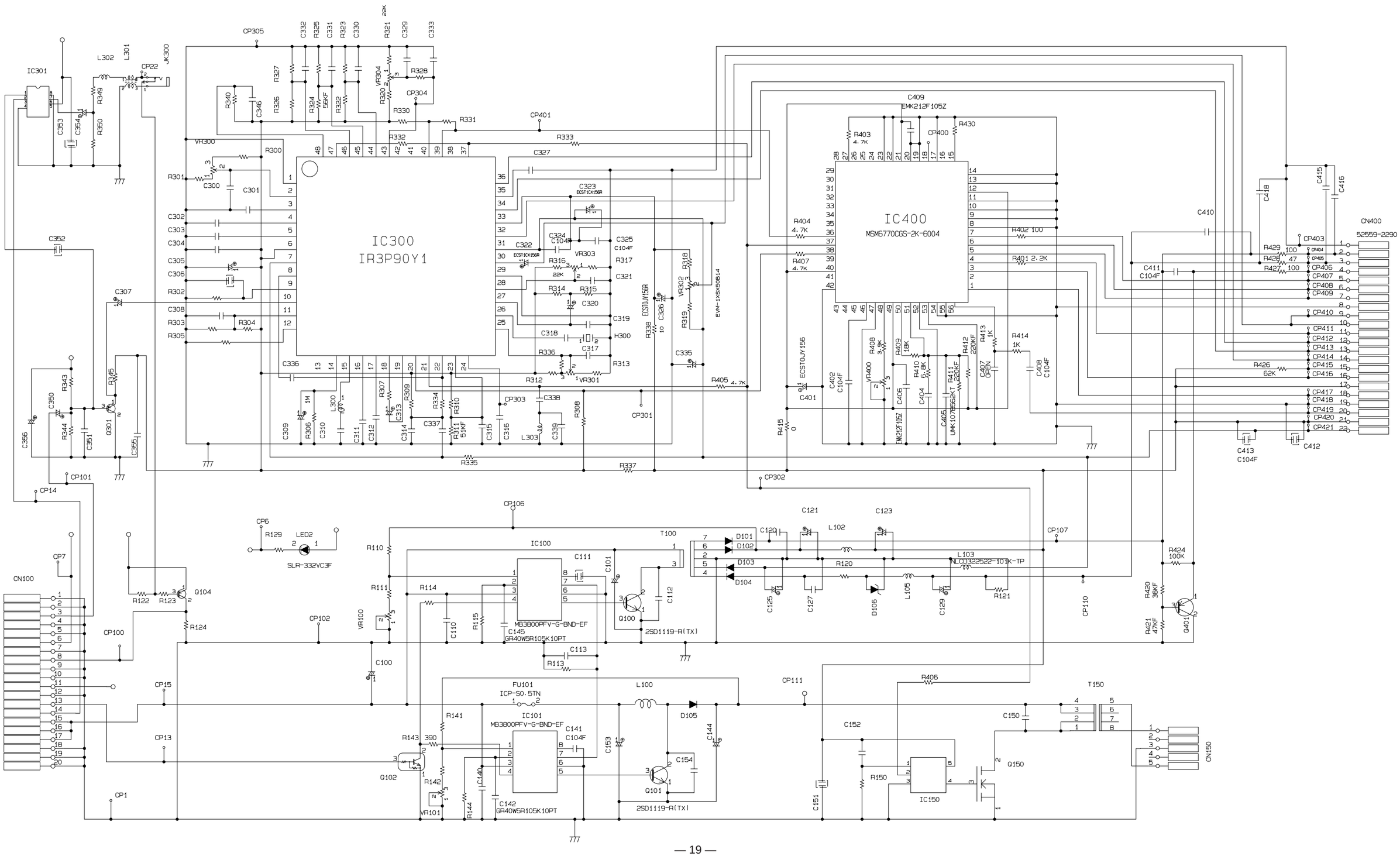
ACCESSORY

Item	Code No.	Parts Name	Specification	Applicable	Q	R
51	3851 2078	STRAP	ST-K770	Common	1	X
52	1014 8773	CABLE/VIDEO	VC-K723-FC	Common	1	X
53	1014 9783	CASE/SOFT	SC-770	Common	1	X

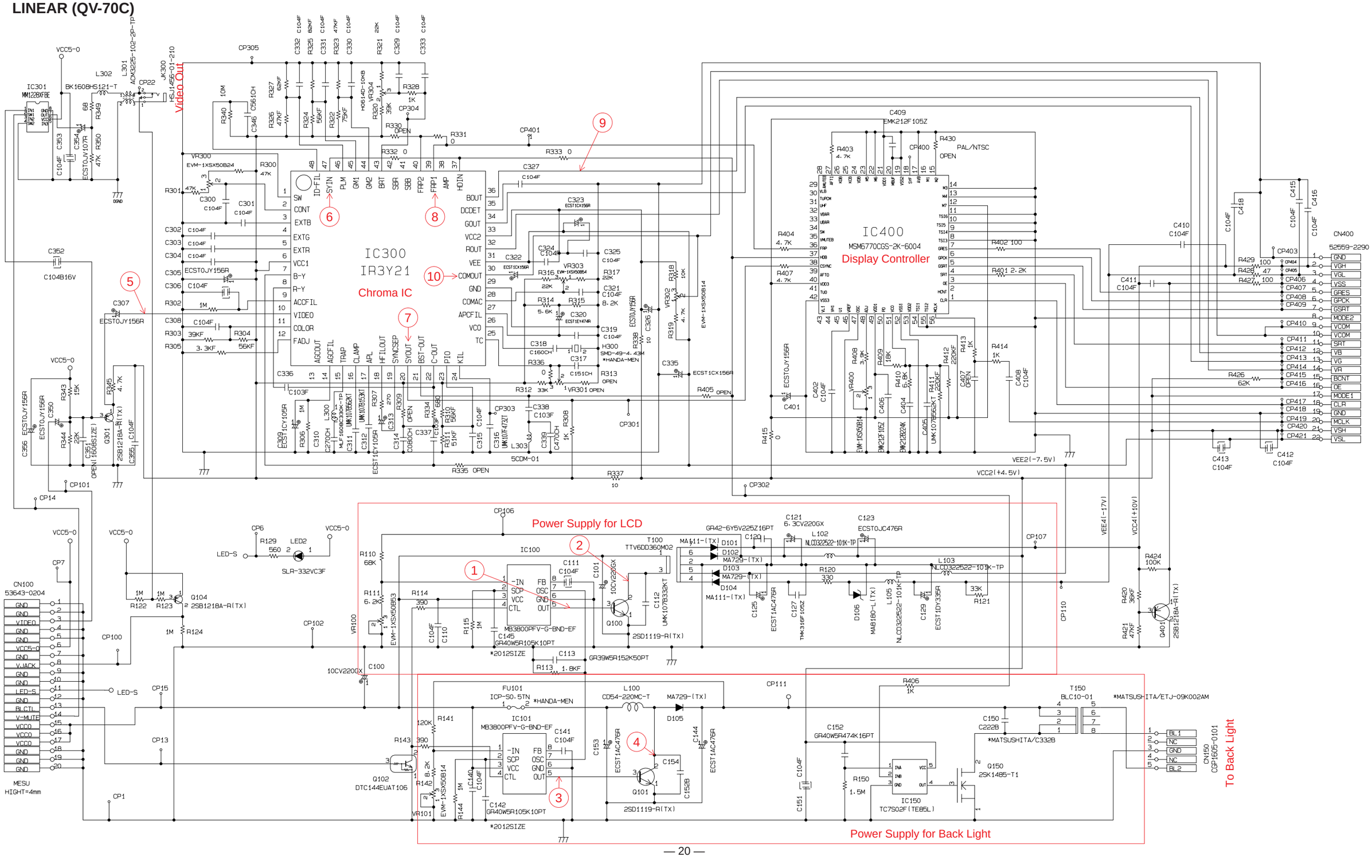
Notes: Q – Quantity used per unit
R – Rank

SCHEMATIC DIAGRAMS

LINEAR (QV-70B)



LINEAR (QV-70C)



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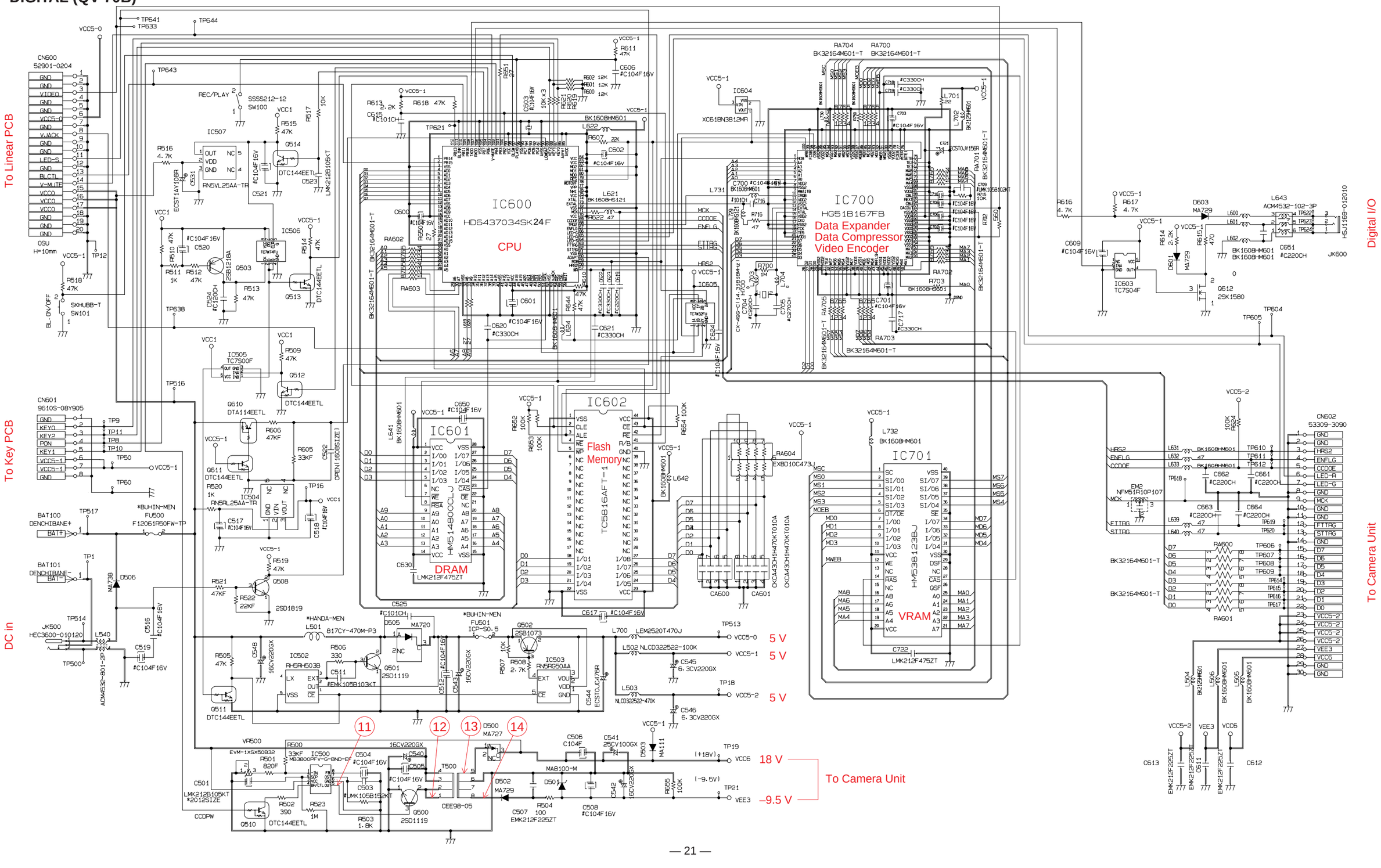
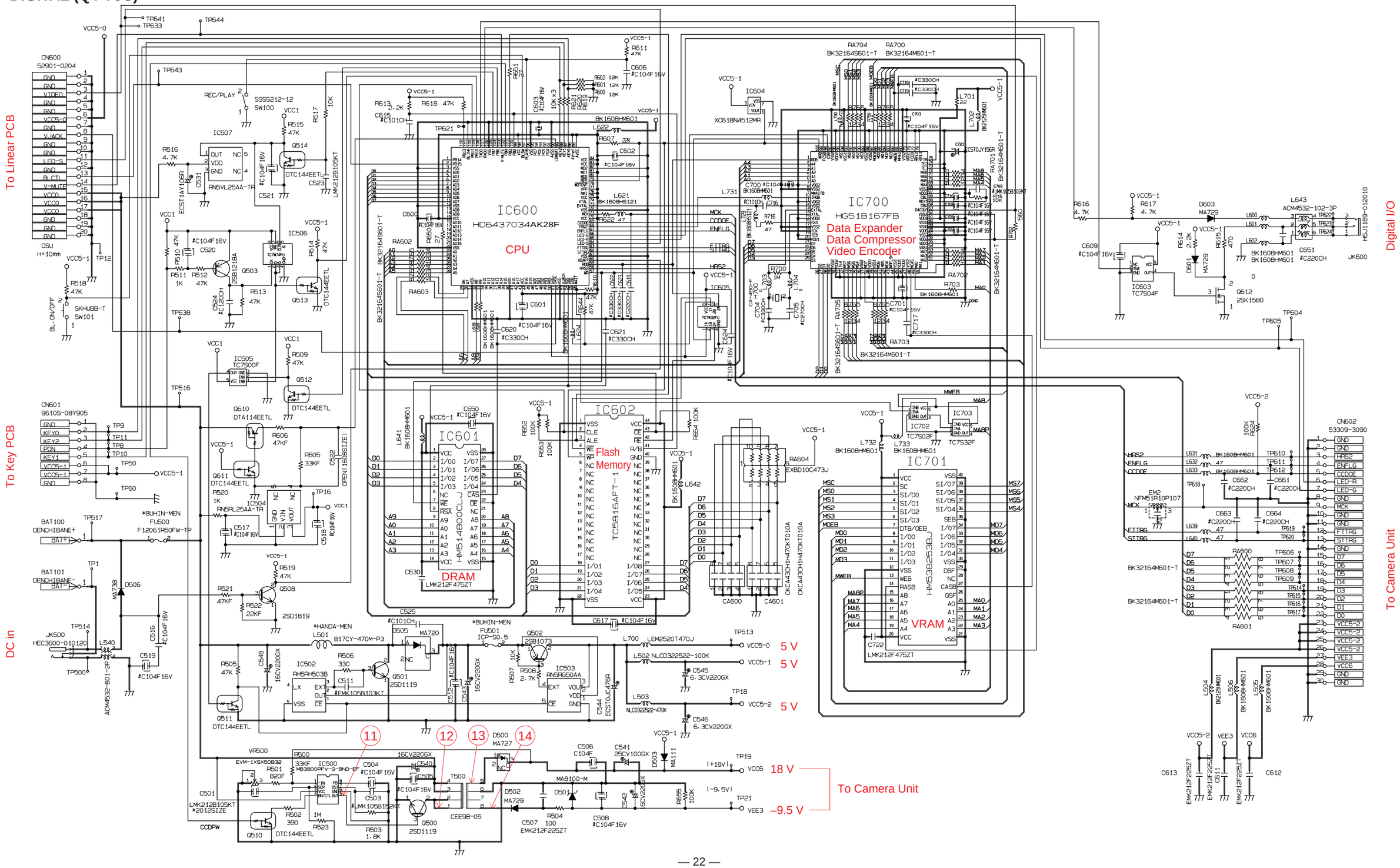


DIGITAL (QV-70C)



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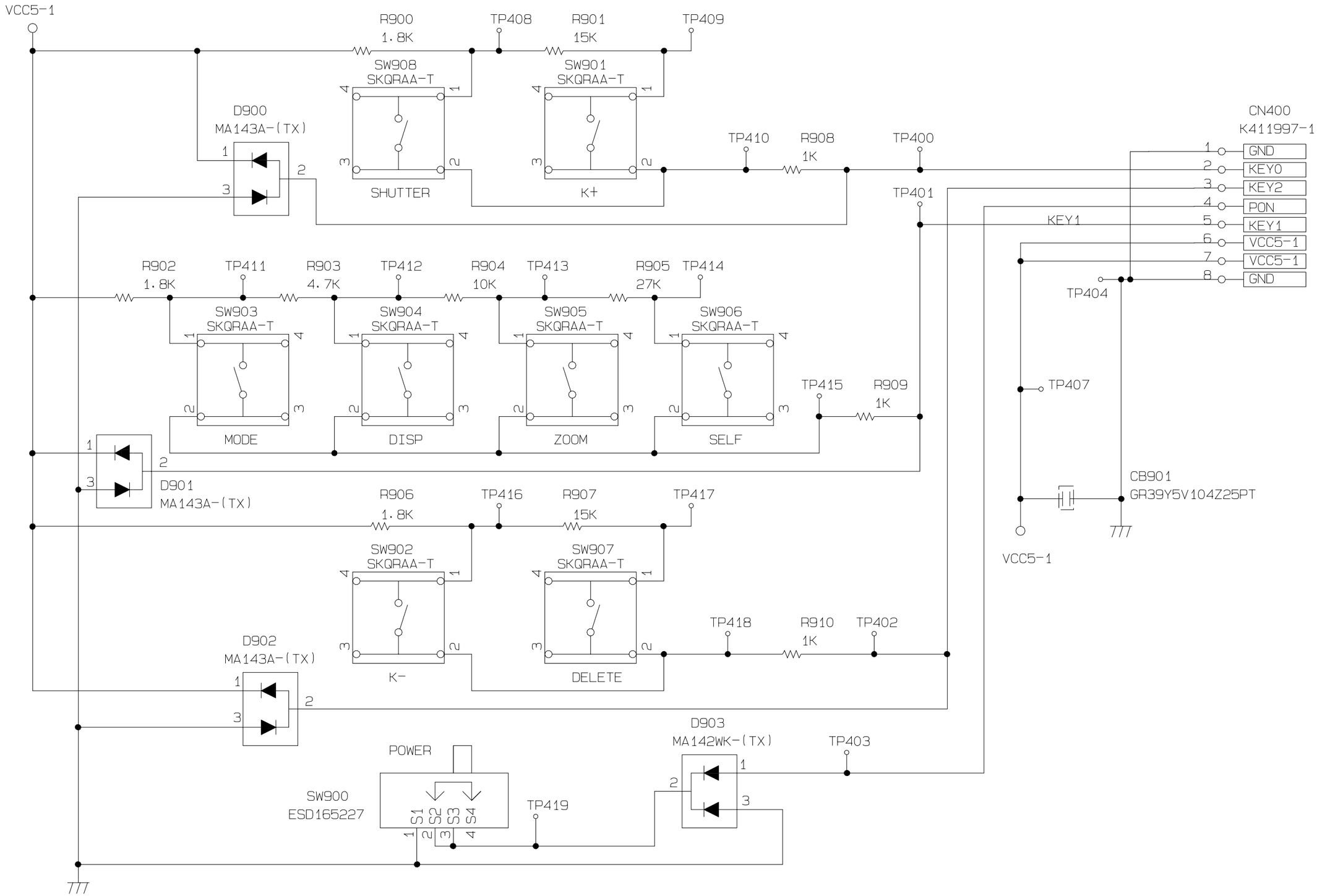
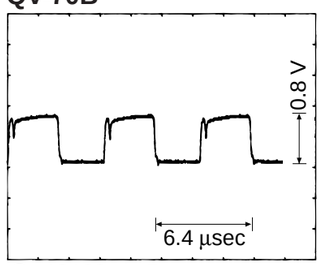
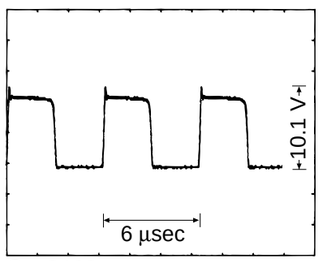

VCC5-1
R900
1.8K
TP408
R901
15K
TP409
SW908
SKQRAA-T
SW901
SKQRAA-T
D900
MA143A-(TX)
SHUTTER
K+
TP410
R908
1K
TP400
CN400
K411997-1
GND
KEY0
KEY2
PON
KEY1
VCC5-1
VCC5-1
GND
TP401
KEY1
TP404
R902
1.8K
TP411
R903
4.7K
TP412
R904
10K
TP413
R905
27K
TP414
SW903
SKQRAA-T
SW904
SKQRAA-T
SW905
SKQRAA-T
SW906
SKQRAA-T
MODE
DISP
ZOOM
SELF
TP415
R909
1K
TP407
CB901
GR39Y5V104Z25PT
VCC5-1
D901
MA143A-(TX)
R906
1.8K
TP416
R907
15K
TP417
SW902
SKQRAA-T
SW907
SKQRAA-T
K-
DELETE
TP418
R910
1K
TP402
D902
MA143A-(TX)
D903
MA142WK-(TX)
TP403
POWER
SW900
ESD165227
S1
S2
S3
S4
TP419

WAVEFORMS

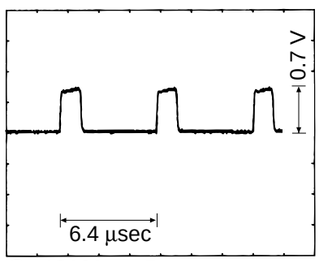
QV-70B



① IC100 pin 5



② Q100 collector



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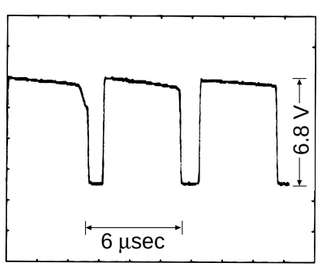

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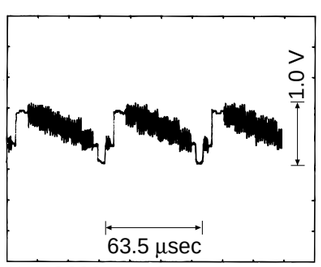
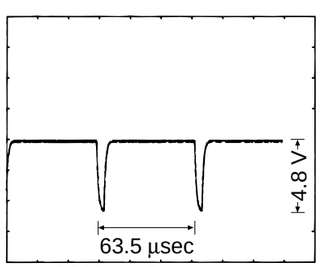
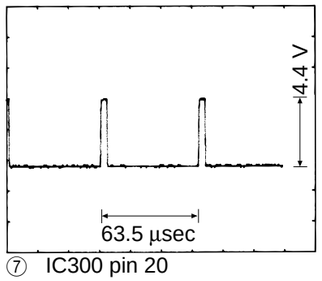


⑤ IC300 pin 10



⑥ IC300 pin 21



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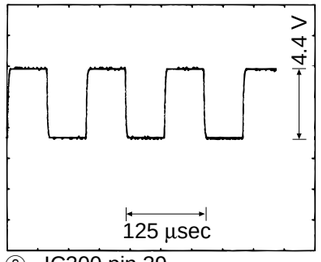
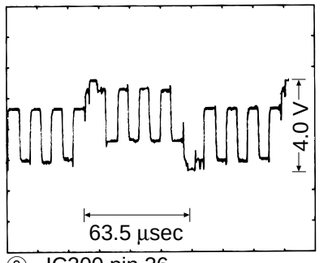
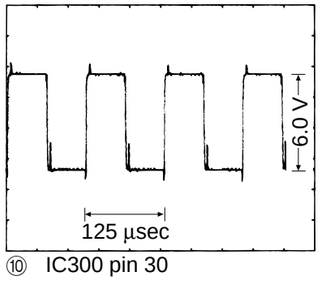


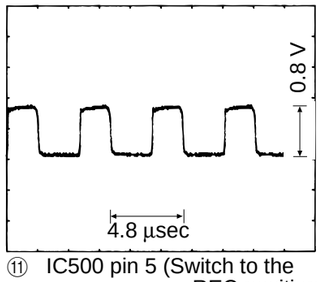
⑧ IC300 pin 39



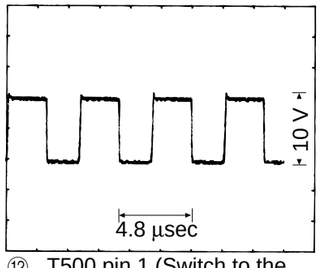
⑨ IC300 pin 36



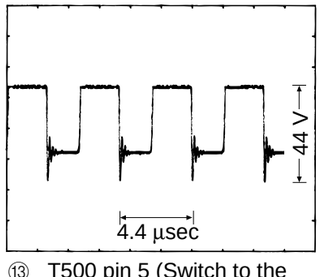
⑩ IC300 pin 30



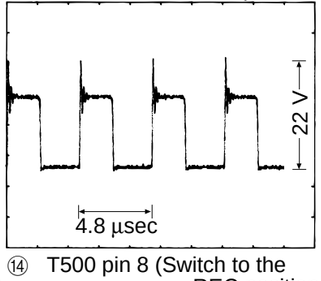
⑪ IC500 pin 5 (Switch to the REC position.)



⑫ T500 pin 1 (Switch to the REC position.)

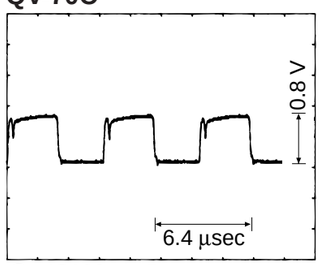


⑬ T500 pin 5 (Switch to the REC position.)

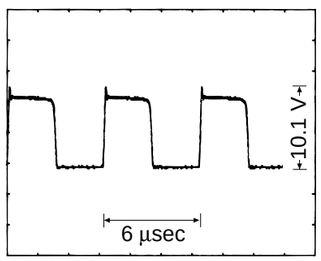


⑭ T500 pin 8 (Switch to the REC position.)

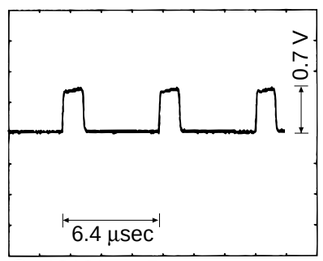
QV-70C



① IC100 pin 5



② Q100 collector



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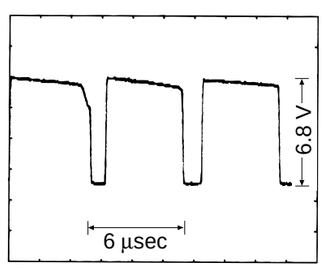
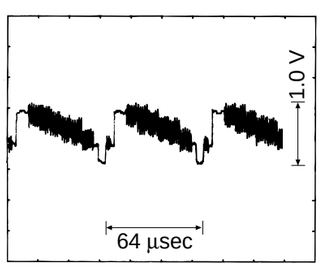
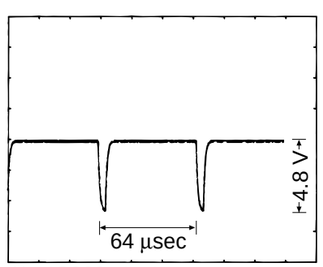


④ Q101 collector



⑤ IC300 pin 10



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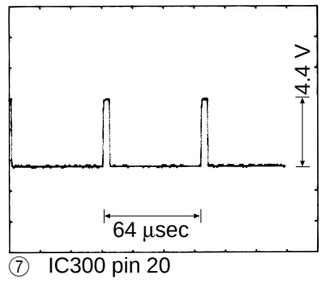

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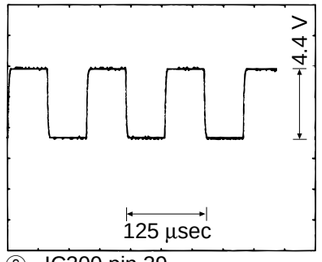

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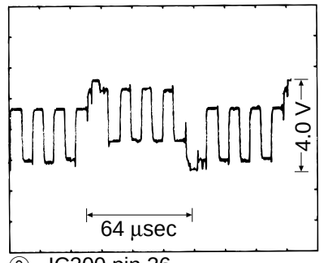

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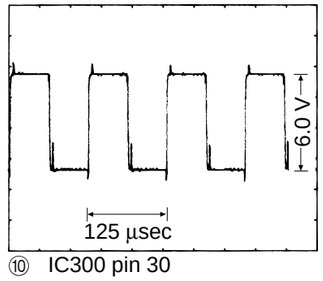

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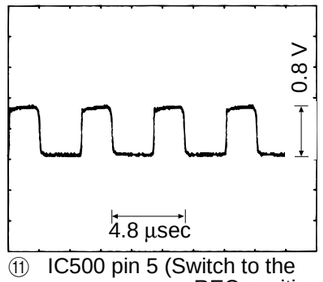
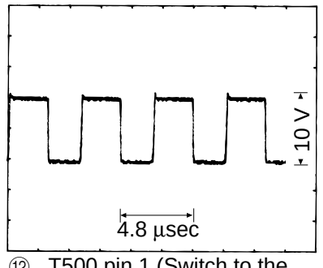
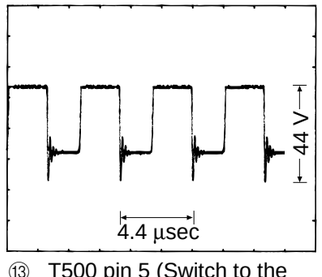


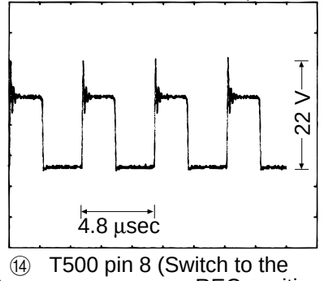
⑪ IC500 pin 5 (Switch to the REC position.)



⑫ T500 pin 1 (Switch to the REC position.)



⑬ T500 pin 5 (Switch to the REC position.)



⑭ T500 pin 8 (Switch to the REC position.)

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Shinjuku-ku, Tokyo 160, Japan
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